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finest sunspot *minimum* I was led to inquire whether similar coincidences were to be traced in the past. I did not know then, but I know now, that Wolf, exactly half a century ago, had suggested a connection between solar and seismic activity; in his time, however, the record of solar changes was short and imperfect.

In my own inquiry I have used our most recently compiled tables, which are now complete for the last 70 years, and I have only considered seismic disturbances within that period. I find beyond question that the most disastrous volcanic eruptions and earthquakes, generally occur, like the rain pulses in India, round the dates of the sunspot *maximum* and *minimum*. More than this, the 35-year solar period established by Dr. Lockyer, which corresponds approximately with Bruckner's meteorological cycle, can also be obviously traced, so that, indeed, the intensification of the phenomena at the *minimum* of 1867 is now being repeated.

In 1867, Mauna Loa, South America, Formosa, Vesuvius were among the regions involved; in the West Indies it was the turn of St. Thomas. The many announcements of earthquakes in the present year before the catastrophe of St. Pierre will be in the recollection of everybody.

In the *maximum* in 1871-72, to name only West Indian stations, Martinique first and then St. Vincent followed suit; in the next *maximum*, in 1883 came Krakatoa.

At Tokio, in a country where the most perfect seismological observatories exist, we find that at times near both sunspot *maxima* and *minima* the greatest number of disturbances have been recorded.

Very fortunately, the magnificent work of the Indian Meteorological Department enables us to associate the solar changes with pressures in the tropics, and obviously these pressures have to be taken into account and carefully studied.

This, sir, brings me to the point of this letter, which is, through your kindness, to ask from meteorological observers in the West Indies and the surrounding regions the favor of copies of their barometrical readings, showing

the departures from the local means for the two months preceding the eruption at St. Pierre. In this way one or two years may be saved in getting at the facts.

SCIENTIFIC NOTES AND NEWS.

At the annual meeting of the American Academy of Arts and Sciences, held on May 14, it was voted to award the 'Rumford Premium' to Professor George Ellery Hale of the Yerkes Observatory, 'for his investigations in solar and stellar physics, and in particular for the invention and perfection of the spectro-heliograph.' It was also voted to appropriate the sum of \$750 from the income of the Rumford Fund to be expended for the construction of a mercurial compression pump designed by Professor Theodore W. Richards and to be used in his research on the Thomson-Joule effect. An appropriation from the Rumford Fund was also made to Professor Arthur A. Noyes in aid of his research upon the effect of high temperatures upon the electrical conductivity of aqueous solutions.

DR. ANGELO HEILPRIN, of Philadelphia, and Mr. George Kennan are among those who are engaged in studying the volcanic eruptions in the Lesser Antilles. They, as well as Dr. R. T. Hill, according to the reports in the daily papers, have made a thorough examination of the conditions in Martinique, having explored that the Government will defray the expenses.

THE Paris Academy of Sciences will send a scientific mission to investigate the volcanic eruptions in the Lesser Antilles. The mission will probably sail on June 9. It is understood that the Government will defray the expense.

AN expedition to study the volcanic eruptions in the West Indies is also planned by Great Britain under the auspices of the Royal Society. It is expected that Dr. Tempest Anderson and Dr. Flett, of the Geographical Survey, will be members of the party.

A SCIENTIFIC Commission consisting of Dr. G. C. Low, Dr. C. Christy and Dr. Castelani has been sent to Uganda by the Royal Society for the purpose of investigating sleeping sickness.

MR. C. CROSSLAND and Mr. J. S. Budgett have received grants for zoological research in Africa from the Balfour fund of Cambridge University.

CAPT. J. S. PRATT, of the U. S. Coast and Geodetic Survey, is preparing for his annual cruise in northern waters on the United States steamer *Patterson*.

FOREIGN exchanges state that Professor Rudolf Virchow is now going through a 'cure' at Teplitz-Schonau, where he is under the care of Dr. Hirsch. He is able to walk about with support, sometimes using only one crutch. He is regaining power over the injured limb, being able to lift the left leg so as to place it across the right knee. His general condition is also much improved.

DR. S. KIMURA, surgeon inspector of the imperial Japanese navy, is at present in this country, where he will spend three months examining the medical and hygienic arrangements of our navy.

THE University of Cambridge will on June 10 confer the degree of LL.D. on Mr. F. S. R. Bell, of the Canadian Geological Survey.

THE prize of the Otto-Vahlbruch foundation at Hamburg has this year been awarded to Dr. Ludwig Boltzmann, professor of physics at the University of Leipzig. The value of the prize is about \$2,400.

THE Rolleston Memorial Prize, awarded at Oxford University for original research in morphology, has been given to Mr. Francis J. Cole, of Jesus College.

SIR WILLIAM TURNER THISTLETON DYER, director of the Kew Botanical Gardens, has been appointed botanical adviser to the secretary of state for the colonies.

THE degree of M.A. has been conferred by Oxford University on Andrew L. Herbertson, Ph.D. (Freiburg in B.), lecturer in regional geography, and on Henry N. Dickson, B.Sc., New College, lecturer in physical geography.

CAMBRIDGE UNIVERSITY has granted the degree of M.A. (*honoris causa*) to Mr. T. H. Middleton, professor of agriculture.

ON February 15 the Russian Medical Society celebrated the hundredth anniversary of the birth of its founder, Dr. Fedor Inosemzeff, who died in 1869. Dr. Inosemzeff was professor of surgery in the University of Moscow till his death.

A MEMORIAL erected by Edward Longstreth, of Philadelphia, to John Fitch, who is said to have been the first to apply steam to the running of a boat, has been erected in Warminster, Pa. It bears the inscription: "John Fitch here conceived the idea of the first steam-boat. He ran a boat with side-wheels by steam on a pond below Davisville in 1785. Bucks County Historical Society."

WE have already noted the unveiling of a bronze tablet at Lafayette College in memory of the late James H. Coffin. The inscription reads as follows: "In memory of James Henry Coffin, LL.D. Long a main-stay of Lafayette College, professor of mathematics, natural philosophy and astronomy, 1846-1873; vice-president and college treasurer, 1863-1873. A tireless teacher and administrator, an officer of the church, a friend of the slave. A member of the National Academy of Sciences, author of 'Winds of the Globe.' He annexed the atmosphere to the realm of science, and searched the highways of the winds and the paths of vagrant storms. Born in Williamsburg, Mass., September 6, 1806; died in Easton, February 6, 1873. The Class of 1866 has erected this tablet."

PROFESSOR ADOLF KUSSMAUL, the eminent German pathologist, who recently celebrated his seventieth birthday, died on May 27. Dr. Kussmaul is eminent for his work on aphasia and other forms of nervous disease.

MR. G. C. HUBBARD, assistant in the department of chemistry, Columbia University, died on May 26. Mr. Hubbard graduated from the School of Applied Science in 1900.

MR. ANDREW CARNEGIE has promised to duplicate all subscriptions up to \$7,500 to the Hugh Miller Centenary Memorial.

MRS. COLLIS P. HUNTINGTON has given the sum of \$100,000 to the General Memorial Hospital for the Treatment of Cancer and Allied

Diseases, New York, the income to be used for pathological research.

MR. EDMUND OLDFIELD, F.S.A., of Rushmore, Torquay, Honorary Fellow of Worcester College, Oxford, who died on April 11, last, bequeathed to the chancellor, masters and scholars of the University of Oxford his cabinet of antiquities, and various specimens of Greek, Roman and Etruscan art in marble, bronze and terra cotta, and he desired that they should be placed in the Ashmolean Museum and known as the 'Oldfield Bequest.'

THE Royal Academy of Medicine of Belgium offers a prize of 800 francs for research on the anatomical relations of the neurons to each other.

THE Royal Society held the first of its annual conversaciones on May 14, with, as appears from the official catalogue, a very interesting exhibit of new apparatus and methods. Of most general popular interest were perhaps the exhibits in color photography by Dr. R. D. Roberts, Sir H. Trueman Wood and Messrs. Samger Shepherd and Company. The photographs showing geological formations and photomicrographs of stained sections of tissues are of considerable scientific interest as giving results free from the personal equation of the artist. As has been usual in late years X-ray photographs appear to have been a prominent part of the exhibition. Other exhibits in physics were a new type of chronograph, in which the pens are moved instead of the drum, by Mr. R. L. Mond and Dr. Wilderman; the film structure of metals by Mr. George Bailey; an improved coal calorimeter by Mr. W. Rosenheim, and kites for meteorological purposes by Mr. W. H. Dines. The zoological exhibits included fossil mammals from Egypt, recently obtained by the Natural History Museum; the parasites discovered by Dr. A. Tylor in the blood of cattle in South Africa and by Mr. Everett Dutton in human blood, where symptoms occurred resembling those suffered by animals when bitten by the Tsetse fly. Photographs of the nebula surrounding Nova Persei were exhibited by Professor Hale, of the Yerkes Observatory.

THE amount proposed to be expended in three years by Great Britain on North Sea fishery investigations, as the result of the Stockholm and Christiania Conference (including the share of the cost of the central bureau) is £42,000.

THE American Congress of Tuberculosis is meeting this week in New York City. Among those expected to take part are Dr. Daniel Lewis, head of the Health Department of the State of New York; Dr. E. J. Barriek, of Toronto; Dr. J. J. Kinyoun, of Glendola, Pa.; Professor J. G. Adami, of McGill University, and Dr. D. E. Salmon, chief of the Bureau of Animal Industry, Department of Agriculture.

THE American Institute of Electrical Engineers held its nineteenth annual meeting on May 20. Mr. Charles F. Scott was elected president to succeed Mr. Charles P. Steinmetz. It was reported that during the year the number of members had increased by 239 and the assets of the institute by nearly \$15,000.

At the recent annual meeting of the Louisiana Society of Naturalists the election of officers for the ensuing year resulted as follows: *President*, W. R. Dodson; *First Vice-President*, E. M. Hudson; *Second Vice-President*, Miss Grace King; *Third Vice-President*, Ed. Foster; *Secretary*, R. S. Cocks; *Treasurer*, G. R. Westfeldt; *Executive Committee*, A. Richards, R. Rordam, Dr. Martin Feingold.

PLANS have been prepared for the erection of a bacteriological laboratory in Washington, under the control of the Marine Hospital service. We noted last year the act of Congress appropriating \$35,000 for this purpose, and setting aside five acres of ground from the reservation now occupied by the Naval Museum of Hygiene.

A CENTRAL seismological laboratory has been established at Strassburg and placed under the charge of a board including Professors Becker (Strassburg), Credner (Leipzig), Futterer (Karlsruhe), Gerland (Strassburg), Helmert (Potsdam), A. Schmidt (Stuttgart),

Wiechert (Göttingen), and von Zittel (Munich).

THE monthly general meeting of the Zoological Society of London was held on May 23, Dr. Henry Woodward, vice-president, in the chair. It was stated that there had been 173 additions made to the Society's menagerie during the month of April, among which special attention was directed to two pairs of the beautiful grey teal (*Querquedula versicolor*), of the Argentine Republic, obtained by purchase. After the proceedings of the usual monthly general meeting had terminated Professor J. Cossar Ewart delivered a lecture on 'Horses and Zebras.'

MR. EADWEARD MUYBRIDGE writes to the editor of the London *Times* as follows: In the new volumes of the 'Encyclopædia Britannica' is reproduced in the articles 'Egyptology' a tablet of Mena dating from the first dynasty, or about 4700 B.C., and is the oldest written sentence yet discovered. In 'A History of Egypt, by W. M. Flinders Petrie,' the author, referring to the Egyptian artists of the fourth dynasty, says: 'They did not make a work of art as such, but they rivalled nature as closely as possible.' Two figures—a bull and a deer—on the tablet of Mena afford a remarkable confirmation of the professor's statement, in regard to the knowledge and expression of motion by the sculptor of this age. A bull striving to attain his utmost speed is represented in a phase of movement, which after a lapse of 66 centuries is reproduced in a photo-engraving illustrating some consecutive phases in the stride of a horse, published in the 'Century Dictionary' under the heading of 'Gallop,' and in the 'Standard Dictionary' in its definition of 'Movement.' The phase employed by the Egyptian artist has been, until recent years, very rarely used in art; the nearest approach to it that I can at this moment recall is in a fresco painting on the walls of the Campo Santo at Pisa, supposed to have been executed at Pisano. It, like the Mena tablet, illustrates a phase of the transverse gallop—a system of motion adopted by the horse, the ox, and the greater number of animals, whether

single toed, cloven or soft-footed, when they exert their utmost power to attain their highest speed. In the lowest line of figures on the tablet is a deer, evidently jumping over an obstacle. The animal is represented with all its legs, flexed, in pairs, under its body. A precisely similar phase may be found in a series, in the library of the British Museum, demonstrating a jump which sometimes takes place in the rotary gallop of the deer, which system of motion is always used by the deer and also by the dog, when from caprice or necessity they endeavor to make rapid progress. This distinctive method of galloping was unknown, and, indeed, unsuspected by us moderns, until revealed by photographic investigation of animal locomotion; but it was apparently well known to the early artists of Egypt.

UNIVERSITY AND EDUCATIONAL NEWS.

YALE UNIVERSITY has received for the Sheffield Scientific School a new building for mineralogy, geology and physiography. The donor and the value of the building are not announced, but it is to be known as Kirtland Hall, in memory of the late Professor Jared Potter Kirtland. Professor Kirtland, who was a Yale graduate of the class of 1815, and died in 1877, was professor of the theory and practice of medicine in Ohio Medical College and in Western Reserve College. He was a member of the National Academy of Sciences, and served on the geological survey of Ohio. Plans for the new building show a four-story structure of 95 feet front and 65 feet depth. It will be of plain red brick, with white marble and other stone trimmings. Designs were made by Kirtland Kelsey Cutter of Spokane, a great grandson of Professor Kirtland. The main floor will be devoted to mineralogy, the second floor to inorganic and physical geology, the third to physical geography and physiography, and the basement to mining.

A NEW building, chiefly for surgery, is to be erected for the Johns Hopkins Medical School at a cost of \$100,000.